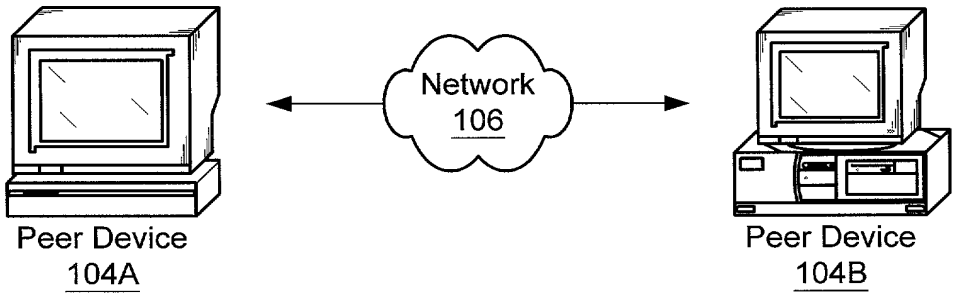
Network
106
Peer Device
104A
Peer Device
104B

FIG. 1A

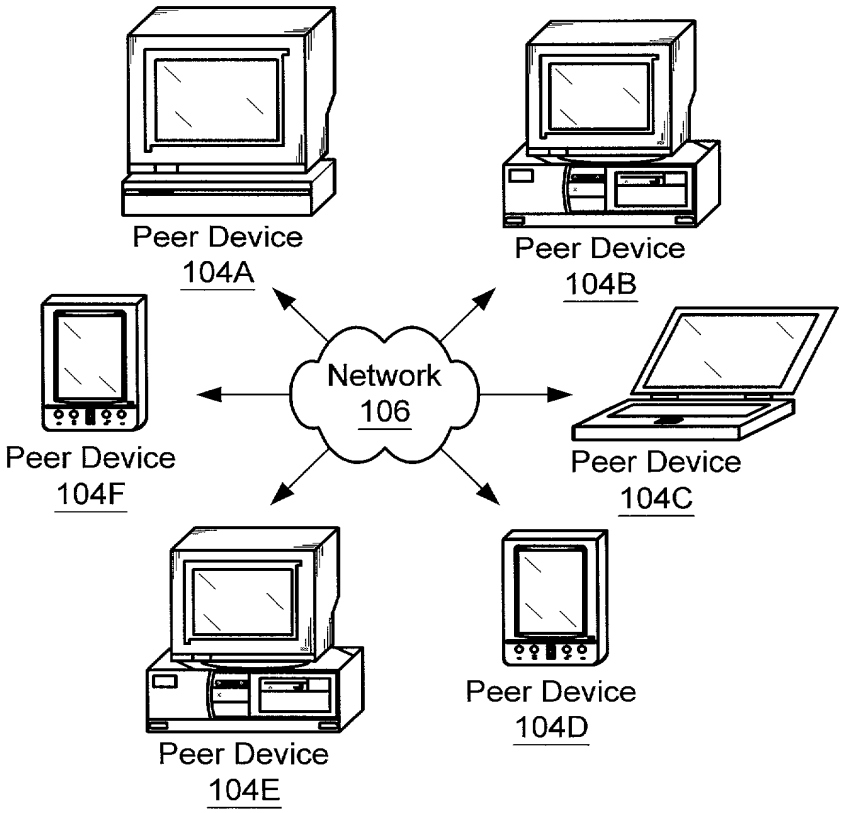
Peer Device
104A
Peer Device
104B
Network
106
Peer Device
104F
Peer Device
104C
Peer Device
104D
Peer Device
104E

FIG. 1B

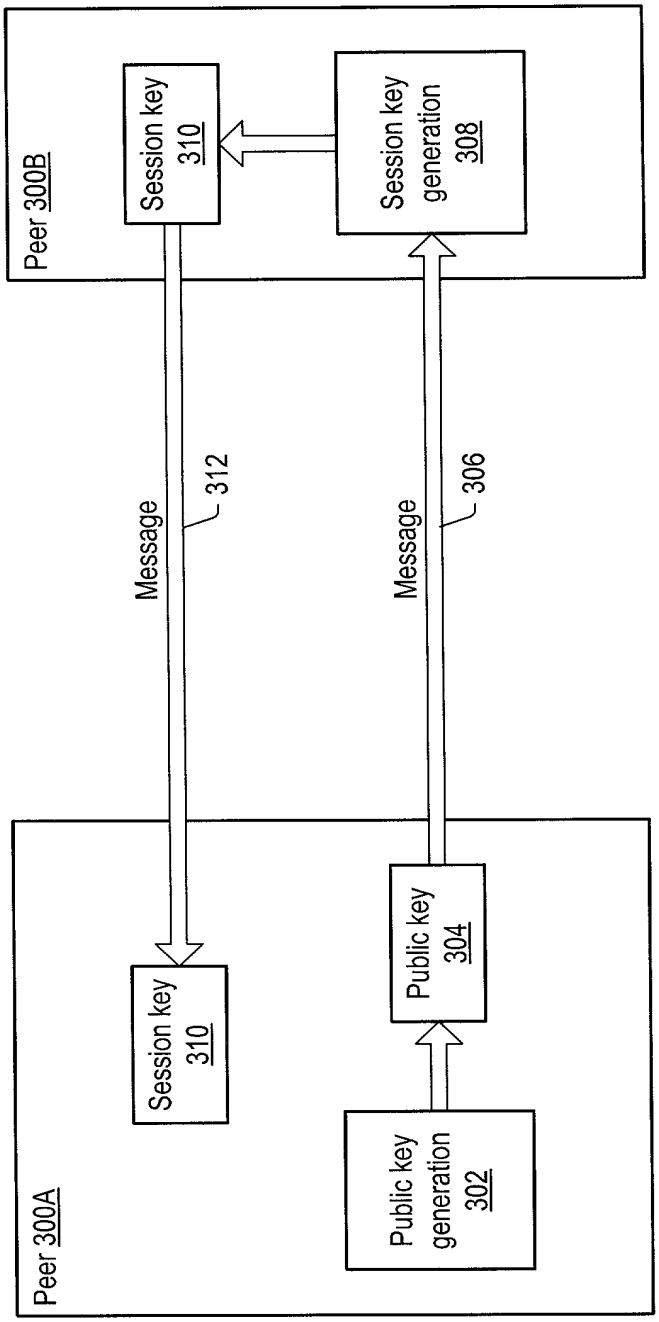
Peer 300B
Session key 310
Session key generation 308
Message
312
Message
306
Peer 300A
Session key 310
Public key 304
Public key generation 302

FIG. 2

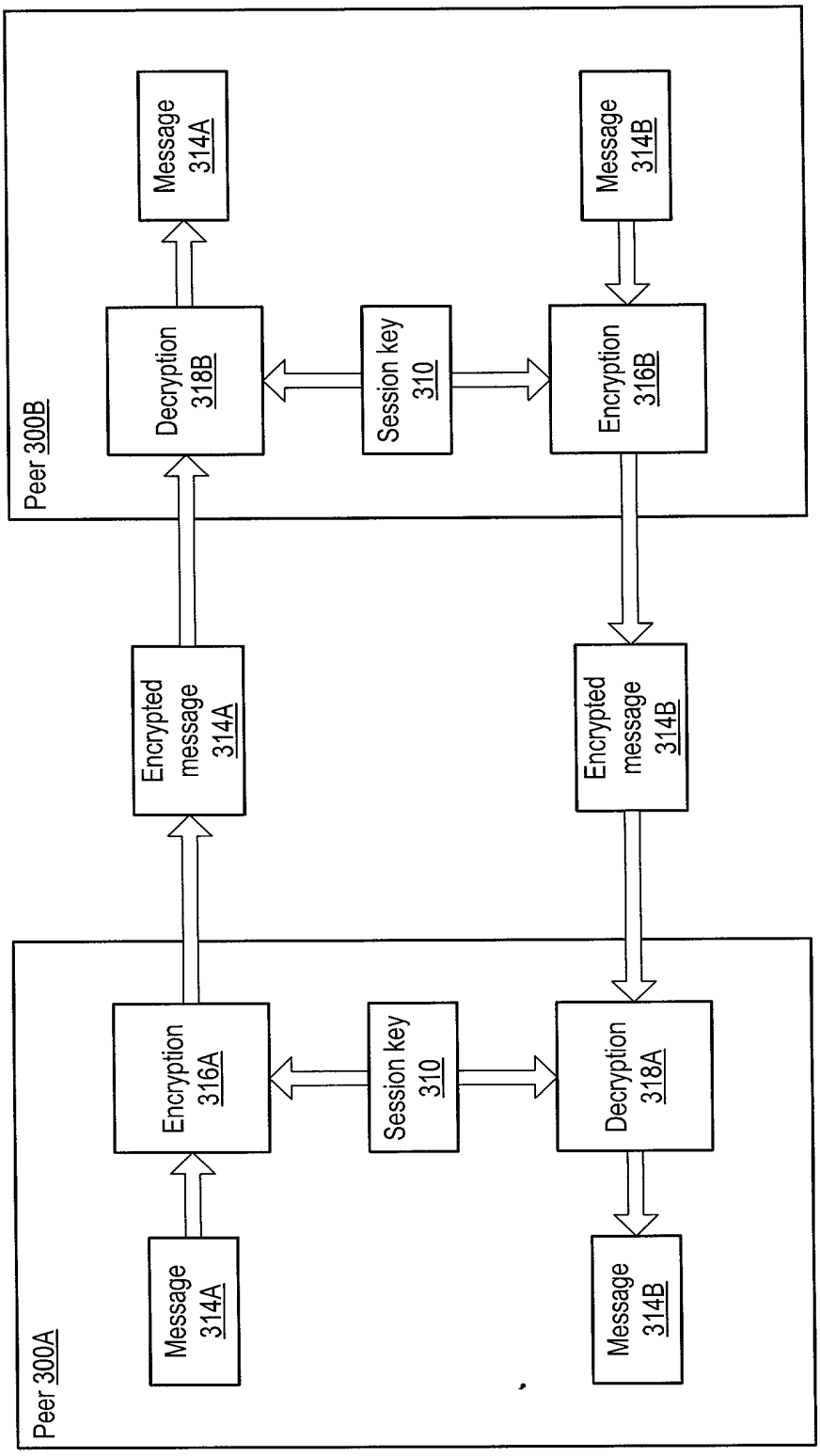
Peer 300A
Message 314A
Encryption 316A
Session key 310
Decryption 318A
Message 314B
Encrypted message 314A
Encrypted message 314B
Peer 300B
Decryption 318B
Session key 310
Encryption 316B
Message 314A
Message 314B

FIG. 3

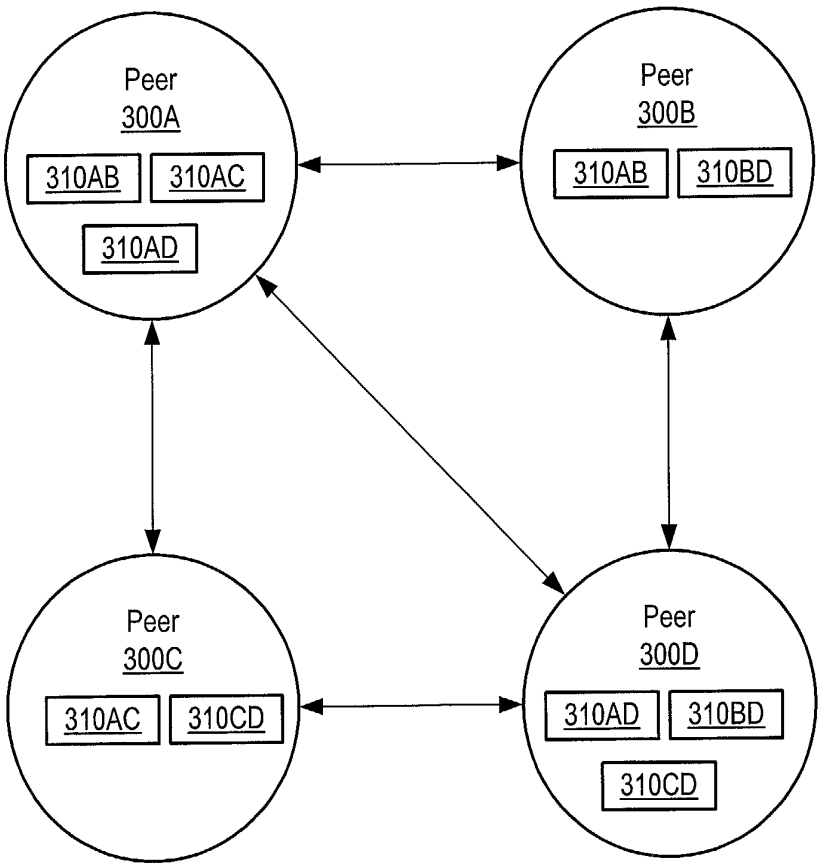
Peer
300A
310AB
310AC
310AD
Peer
300B
310AB
310BD
Peer
300C
310AC
310CD
Peer
300D
310AD
310BD
310CD

FIG. 4

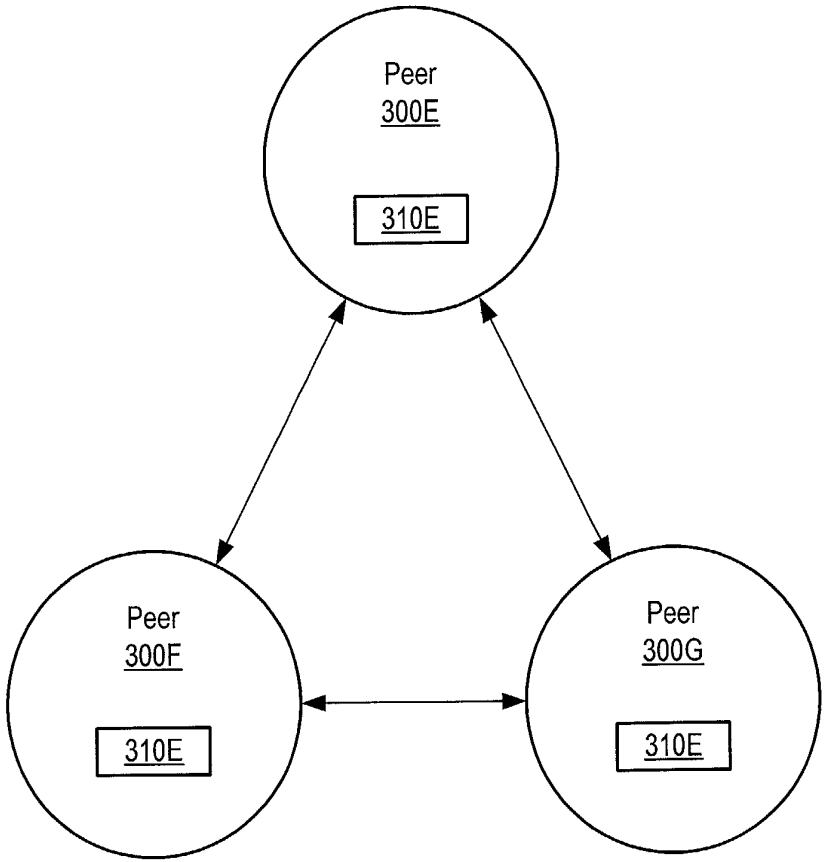
Peer
300E
310E
Peer
300F
310E
Peer
300G
310E

FIG. 5

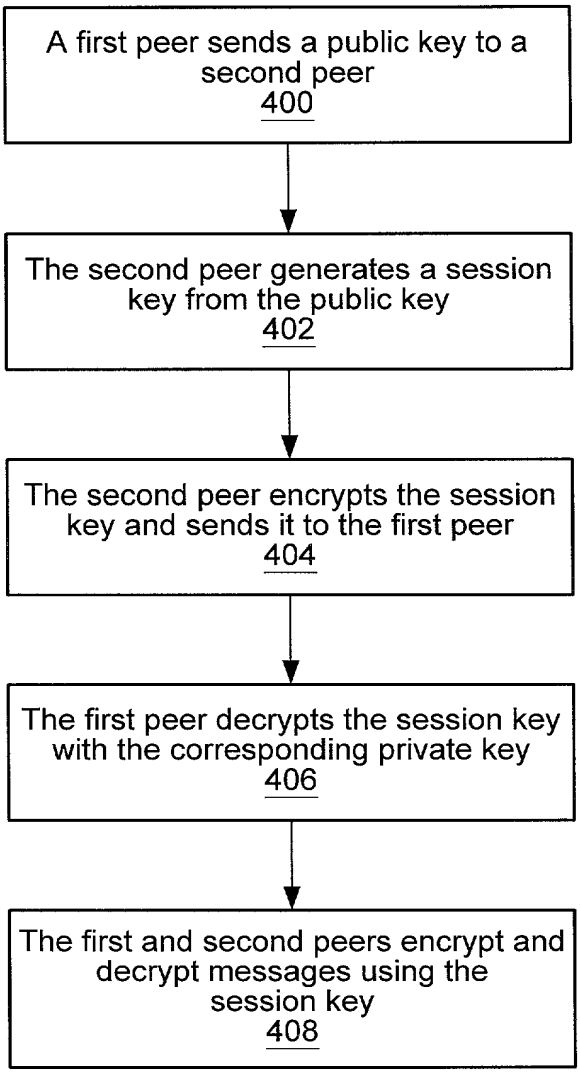
A first peer sends a public key to a second peer
400
The second peer generates a session key from the public key
402
The second peer encrypts the session key and sends it to the first peer
404
The first peer decrypts the session key with the corresponding private key
406
The first and second peers encrypt and decrypt messages using the session key
408

FIG. 6

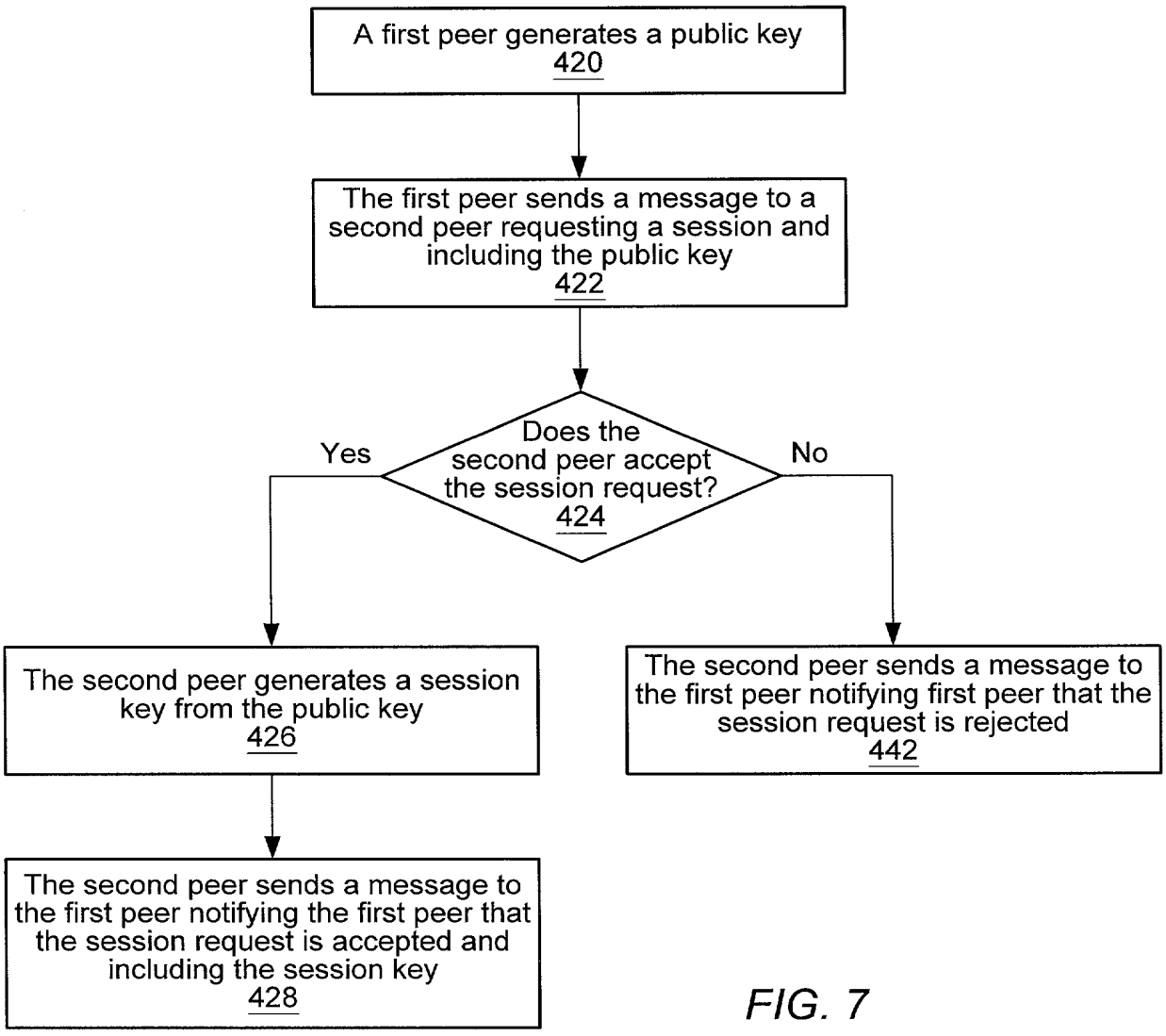
A first peer generates a public key
420
The first peer sends a message to a second peer requesting a session and including the public key
422
Does the second peer accept the session request?
424
Yes
No
The second peer generates a session key from the public key
426
The second peer sends a message to the first peer notifying the first peer that the session request is accepted and including the session key
428
The second peer sends a message to the first peer notifying first peer that the session request is rejected
442

FIG. 7

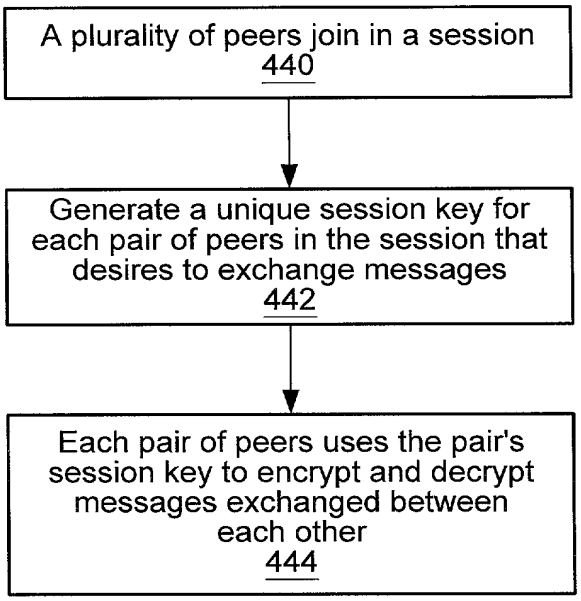
A plurality of peers join in a session
440
Generate a unique session key for each pair of peers in the session that desires to exchange messages
442
Each pair of peers uses the pair's session key to encrypt and decrypt messages exchanged between each other
444

FIG. 8

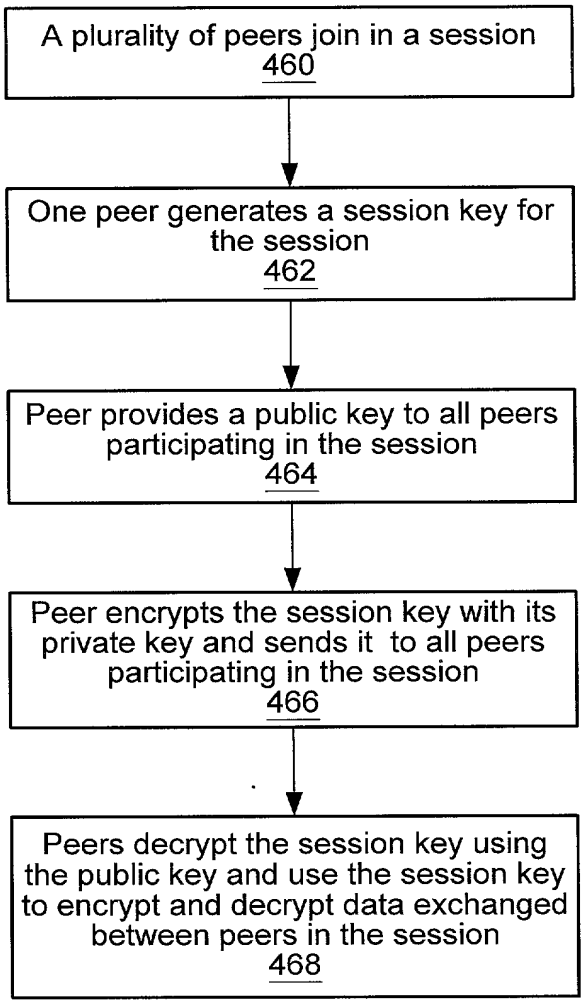
A plurality of peers join in a session
460
One peer generates a session key for the session
462
Peer provides a public key to all peers participating in the session
464
Peer encrypts the session key with its private key and sends it to all peers participating in the session
466
Peers decrypt the session key using the public key and use the session key to encrypt and decrypt data exchanged between peers in the session
468

FIG. 9

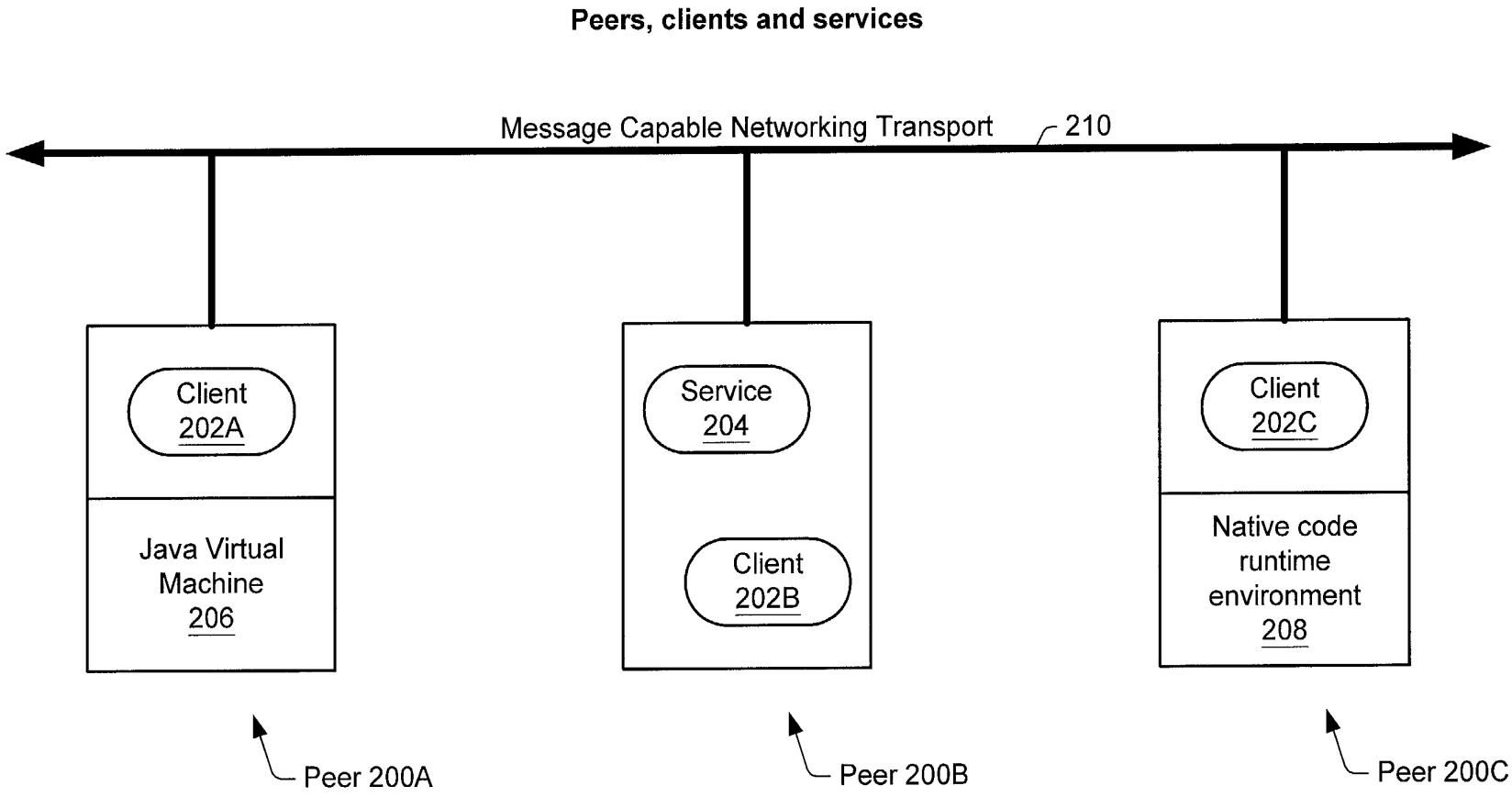
Peers, clients and services
Message Capable Networking Transport
210
Client
202A
Java Virtual
Machine
206
Service
204
Client
202B
Client
202C
Native code
runtime
environment
208
Peer 200A
Peer 200B
Peer 200C

FIG. 10

Peer-to-peer platform message

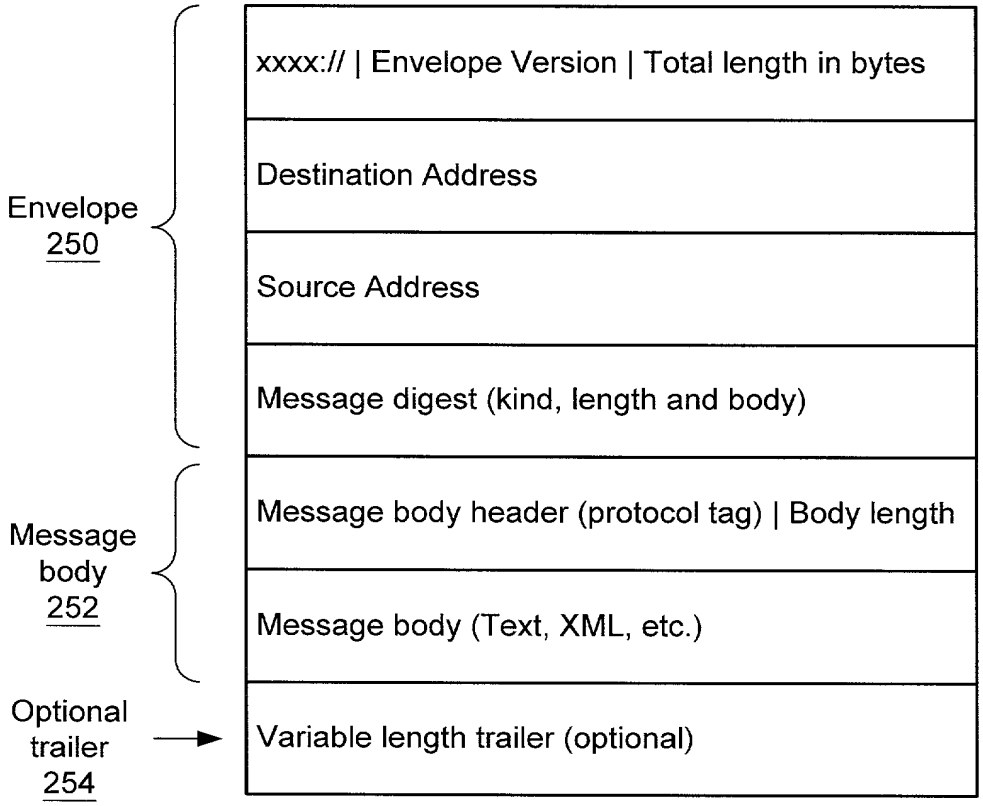

FIG. 11

Content ID

128-bit UUID of Peer Group	Length of Remainder	Unique name within the group (A byte array)

FIG. 12

Peer-to-peer sharing layers

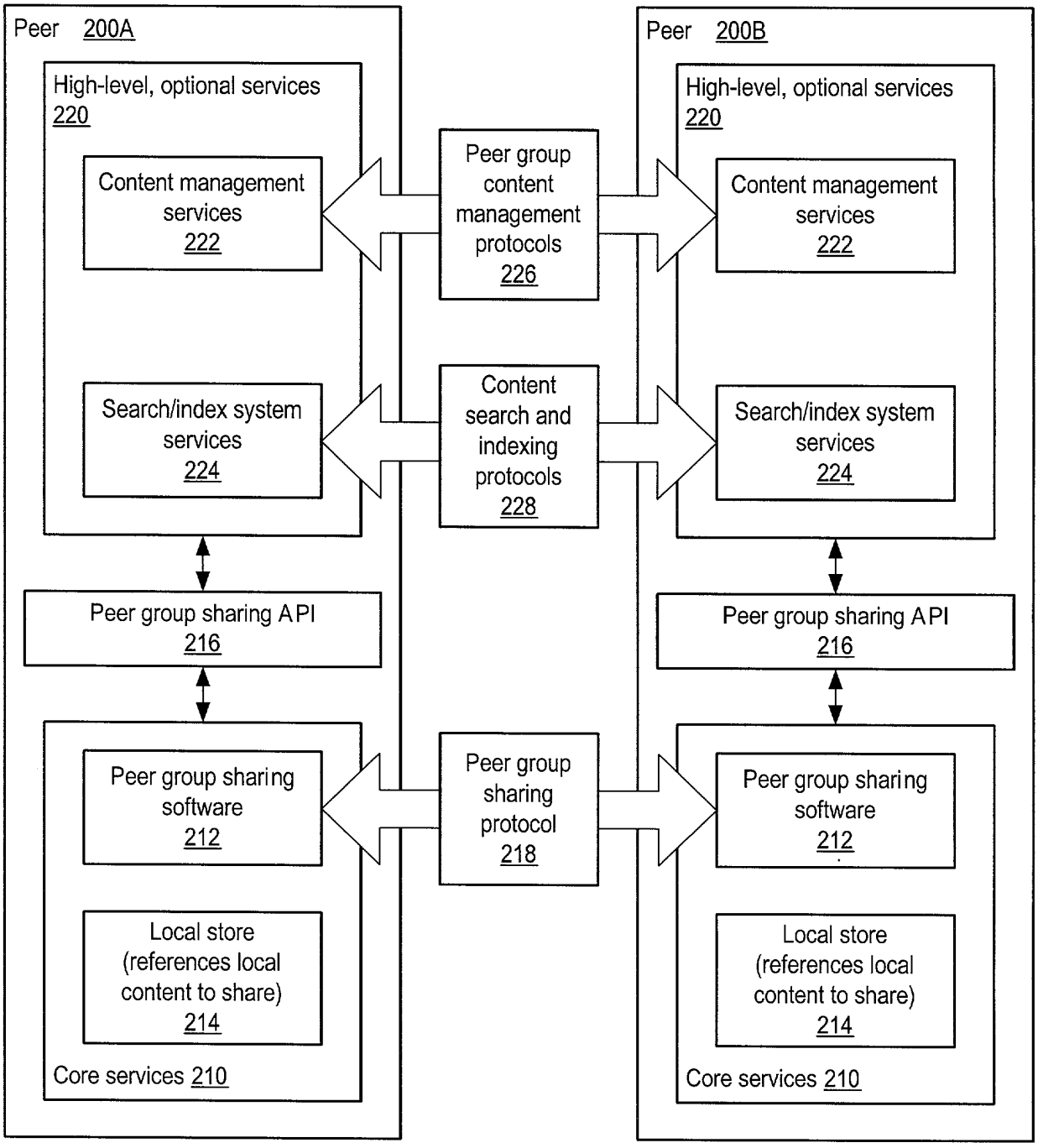

FIG. 13

Policy Advertisement

Element Name (A String)	Element Value Type
Policy Name	A non-canonical resource name (suitable for UI display)
Policy Keywords	String[]
Policy Resolver	<Peer Endpoint> to which the query generation and resolve messages are to be sent

FIG. 14

Peer Advertisement

Element Name (A String)	Element Value Type
Peer Endpoint	<Peer Endpoint[]>

FIG. 15

Peer Group Advertisement

Element Name (A String)	Element Value Type
Membership Application Policy	<Policy Advertisement>
New Member Approval Policy (Authentication)	<Policy Advertisement>
Content Sharing Policy	<Policy Advertisement>
Peer Discovery Policy	<Policy Advertisement>
Policy Resolver Policy	<Policy Advertisement>
Pipe Resolver Policy	<Policy Advertisement>

FIG. 16

Pipe Advertisement

Element Name (A String)	Element Value Type
Direction	<Pipe Direction> (In or Out)

FIG. 17

Service Advertisement

Element Name (A String)	Element Value Type
Access Policy	<Policy Advertisement>

FIG. 18

Content Advertisement

Element Name (A String)	Element Value Type
Type (Optional)	String
Size (Required)	Long
Encoding (Required)	<By Value> or <By Reference>
Content ID (Required)	<Content ID>
About ID (Optional)	<Content ID>
Peer ID (Optional)	<Peer Advertisement>

FIG. 19

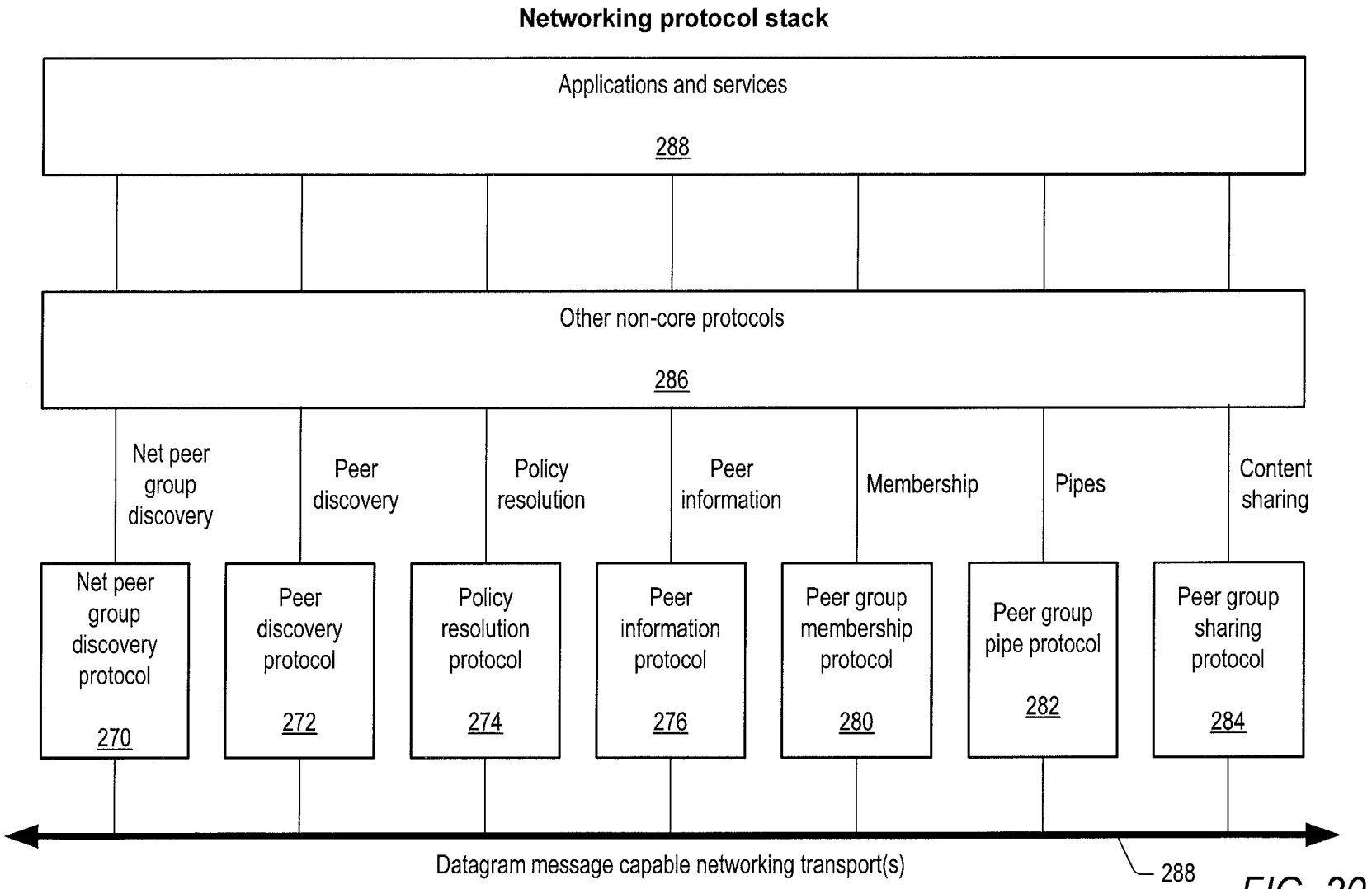
Networking protocol stack
Applications and services
288
Other non-core protocols
286
Net peer group discovery
Peer discovery
Policy resolution
Peer information
Membership
Pipes
Content sharing
Net peer group discovery protocol
270
Peer discovery protocol
272
Policy resolution protocol
274
Peer information protocol
276
Peer group membership protocol
280
Peer group pipe protocol
282
Peer group sharing protocol
284
Datagram message capable networking transport(s)
288

FIG. 20